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An Account of the Effect of Mercurial Vapours on the Crew of His Majesty's Ship Triumph, in the Year 1810. By William Burnett, M.D. one of the Medical Commissioners of the Navy, formerly Physician and Inspector of Hospitals to the Mediterranean Fleet. Communicated by Matthew Baillie, M.D. F.R.S. Read June 19, 1823. [*Phil. Trans.* 1823, p. 402.]

The Triumph arrived at Cadiz in 1810, and in the following March a Spanish vessel, laden with quicksilver, was wrecked under the batteries, then in possession of the French. The Triumph's boats were sent to her assistance, and about 130 tons of the quicksilver carried on board. The metal was secured in bladders packed in barrels, but the bladders having been wetted grew rotten, and the metal escaped in large quantities, got mixed with the provisions, and very soon affected the crew with ptyalism, ulcerated throats, &c. The different animals on board were also affected. From the extent of the mischief it was evident that the air of the confined part of the vessel contained mercurial vapour, and accordingly those who slept and messed in the orlop and lower decks were more severely affected than those chiefly confined to the upper deck; while the men who lived and slept chiefly under the fore-castle, escaped with a slight affection of the gums.

On the Astronomical Refractions. By J. Ivory, A.M. F.R.S. Read June 19, 1823. [*Phil. Trans.* 1823, p. 409.]

The ancients, Mr. Ivory observes, were acquainted with the existence of atmospherical refraction; but the first that ascertained its magnitude with tolerable accuracy, and employed it in his calculations, was Tycho Brahé. Cassini attempted to compute the refraction upon optical principles, and upon the hypothesis of an uniform medium of uniform density,—a supposition which, though very simple, is sufficiently correct to a considerable extent. The next step was to imagine an atmosphere of a density uniformly decreasing as the height increases. Kramp was still more accurate in attending to the true effects of pressure and change of temperature; his methods have been improved and extended with great sagacity by Laplace, and the tables founded on his computations are perhaps the best in existence with respect to the value of the mean refractions.

An uniform atmosphere must be supposed to be five miles in height; an atmosphere uniformly decreasing in density ten. Kramp and Laplace consider it as infinite. The former limits would make the horizontal refraction less than the truth; the latter supposition much greater. Mr. Ivory is inclined to suppose some considerably extended, though finite height, which shall give the true refraction at the horizon, and which will probably be also correct for all other cases; and he thinks it not superfluous to inquire, whether such an atmosphere would afford results sensibly different from those of an atmosphere of infinite extent. The phenomena of twilight and of